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**MEASUREMENT OF STRESSES IN RAILROAD TRACK.**

(ABSTRACT.)

C. C. WILLIAMS.

**D**URING the past two years experiments have been conducted in the Department of Railway Engineering of the University of Kansas to determine the amount, character and laws governing the stresses that occur in railroad track under traffic. The two main purposes have been—

1. To determine whether or not railroad track as it is now being built is the most satisfactory and economical type of structure that could be constructed to perform the functions required of it; whether it is consistently designed and properly proportioned.

2. To determine the laws of stresses occurring under traffic relative to speed and character or class of traffic, in order to allocate operating expenses equitably and accurately to the different branches of service, so that the cost of each may be resolved.

The tests were carried on by means of the Berry strain gage and a specially designed instrument which has been given the name of "track deflectograph." The latter automatically records, by means of a stylus on a revolving cylinder, the deflections of the track as trains pass over at various speeds.

Some of the more interesting observations relate to the positions of the truck wheels of the train for maximum stress, the relative stresses caused by freight and passenger trains, the effect of speed on stress, the effect of flat wheels on stress, the variation of stress with the type of rolling stock, and the vibrations of the rail under the passing of trains.

Future tests are contemplated with a view to determining the stresses in ties, a further study of vibrations, and the investigation of stresses occurring at rail points.

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